

Pap'd March 12 1829

Inaugural Thesis

ON

METASTASIS

or the

Translation of Disease From one
part of the System to another

By

RALPH HAMMERSLY.

*In nova fert animus mutatas dicere formas
Corpora.*

Philadelphia Jan^y 1st 1829

Encephalitis

METASTASIS

Metastasis of Disease from one
part of the System to another

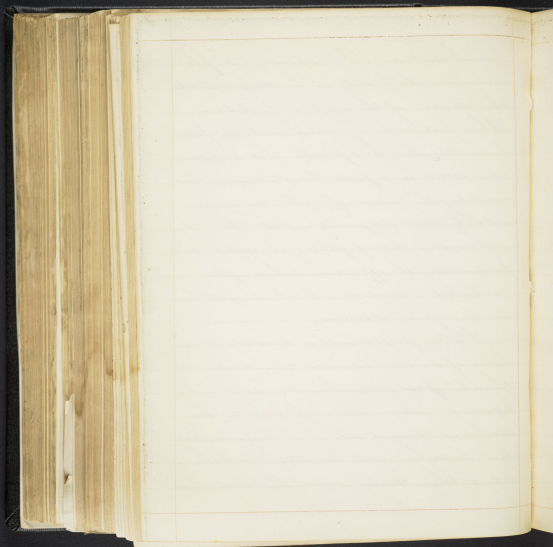
A NEW WORK

BY JOHN H. WATSON, M.D.

NEW YORK: PUBLISHED BY J. B. LIPPINCOTT & CO., 15 N. 2ND ST. 1854.

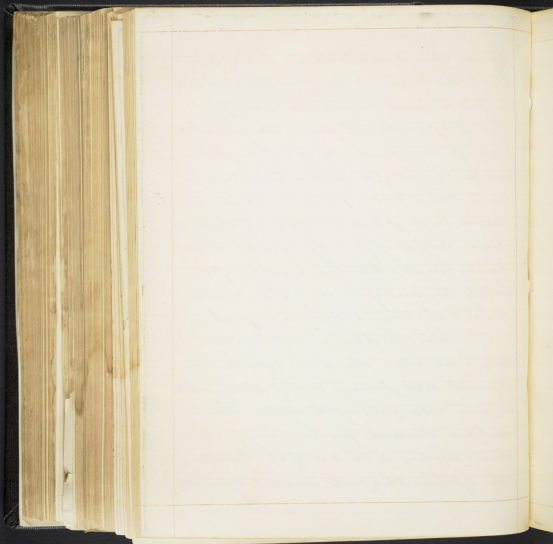
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Metastasis in Diseases is a phenomenon which early in his career attracts the attention of the student of Medicine. When first made acquainted with the fact, he wonders how it is possible that a disease when seated in a particular structure, & there exhibiting the evidences of morbid action, can suddenly desert its primitive centre, locate itself in some distant part of the system, and produce there the appearances and symptoms, which but a short time before were visible in its original situation.

But in proportion as his knowledge of the history of diseases increases, and as diseases themselves pass under his notice in real life, (affording ocular evidence of the fact) his wonder is changed into firm belief; inciting him to enquire into the state & conditions in which these changes occur, the causes which



produce them, and the laws which govern them. These however, to some finds in all subjects involved in much obscurity, embracing physiological & pathological points not yet satisfactorily ascertained. The condition a part is in when the seat of disease, that is, the immediate cause of the alteration from health which is observed in its phenomena; is one of the most obscure subjects of pathological research; requiring for its solution, a knowledge of the healthy functions of all the systems or tissues of which the diseased organ is composed.

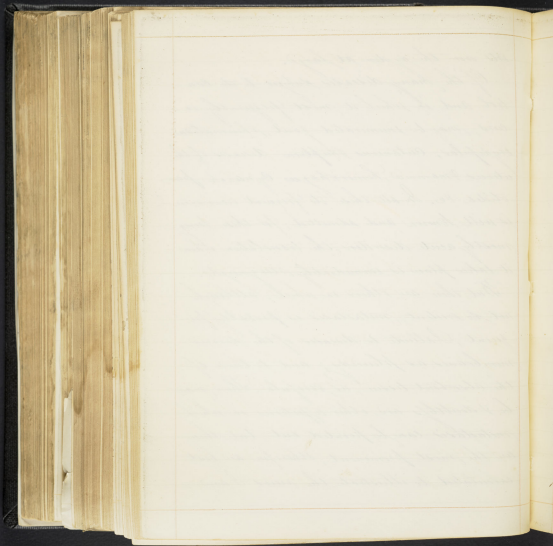
When the phenomenon of Metastasis is brought into action, there is an apparent, removal of heat to the primary seat of disease, while in some other part of the system there are developed disordered functions, varying in violence according to the seat of the transfer, & the influence the newly invaded organ ex-



verts over the system at large.

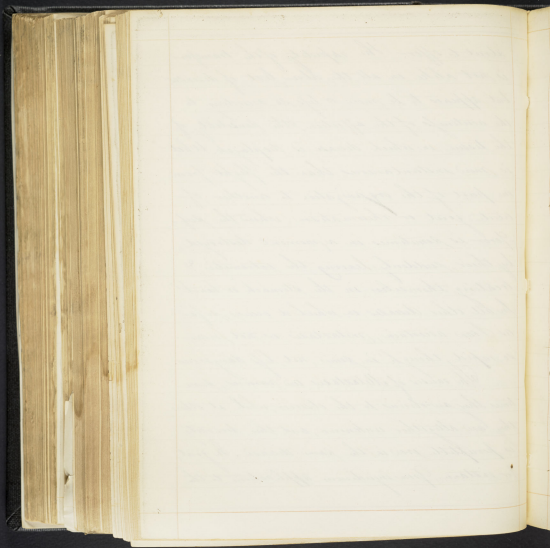
Of the many diseases subject to its control and in which it most frequently occurs, may be enumerated gout, rheumatism, erysipelas, cutaneous eruptions, diseases of the uterus & mamma, hemorrhages, Gynaecic par-
 oxis, &c. In all these its frequent occurrence is well known and admitted; for these being mostly acute disorders, the transition when it takes place is immediately recognized.

But there are others in which, although not so evident, metastasis is possibly frequent, I allude to diseases of the serous membranes, as pleurisy; and to those of the absorbent tissue, as varicela. There may be scalds, and other eruptions in which metastasis can be pointed out; but these are the most prominent, therefore are best calculated to illustrate the point I am



about to offer. The rapidity of the transfer is not alike in all the above list of diseases but appears to be more or less according to the acuteness of the affection, & the possibility of the tissue in which disease is displaced. What is more instantaneous than the flight from one part of the organization to another of acute gout or rheumatism, where the sufferer is sometimes in a moment destroyed, by their suddenly leaving the extremities, & locating themselves in the stomach or heart? In all other diseases in which it occurs, so far as I can ascertain, metastasis is not nearly so rapid, though in some not less dangerous.

The causes of Metastasis are various; sometimes they are obvious to the observer, while at others they are altogether unknown, and this diversity is perceptible even in the same disease. In gout, for instance, from injudicious application to the

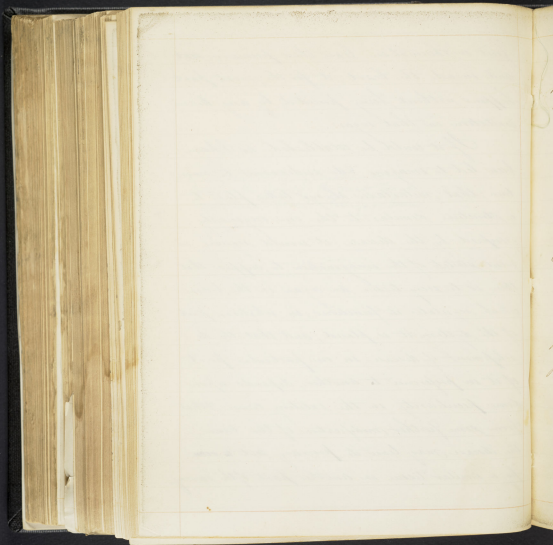


substituted it is, not unusual for it to leave
them altogether and with great rapidity to
develop itself in some internal vital organs,
while in other similar instances the very same
thing takes place when not has not at all been
interposed. In the one case it is manifestly caused
by irritation excited externally at the very
seat of the disease apparently, but in the
other no such cause can be assigned for it,
it would seem to be spontaneous. And here
a very ^{interesting} inquiry arises: Is the metastasis in
the latter instance the result of irritation pro-
duced from some unknown cause in the part
to which the transfer is made? This question
I am unable to answer. It seems probable
that when the metastasis is to the stomach,
it may proceed from such a cause, because
it is to an organ exposed to irritation from
such numerous sources; but when acute

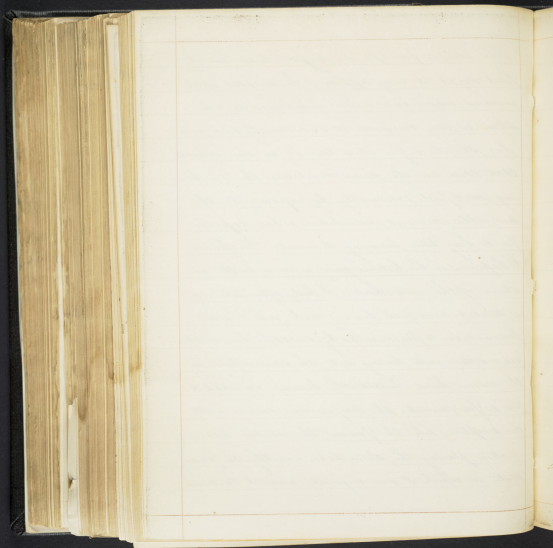
what similarity of structure exists
between the joint of the great toe &
the Stomach - heart - lungs or brain?

gent or rheumatism, leave their primary seat and invade the heart, it for the most part happens without being preceded by any known irritation in that organ.

If it could be established as I have been led to imagine & do endeavour to maintain; that, metastasis always takes place to a structure similar to the one originally occupied by the disease; it would require no great stretch of the imagination to suppose that there is to every tissue an organ in the brain which regulates its functions, in whatever part of the system it is placed; and that the development of disease in one particular part of it in preference to another, depends upon some peculiarity in the exciting cause, & that from some further modification of this cause, the disease may leave its primary seat to occupy a similar tissue in another part of the economy.



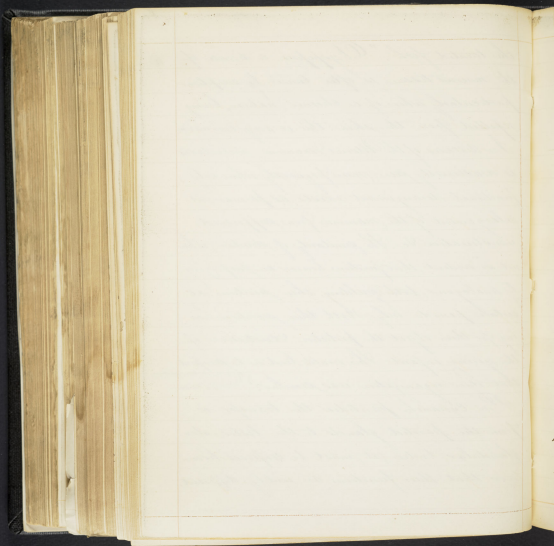
This idea is perhaps so hypothetical as at first sight it may appear. In diseases of the mucous membranes when metastases to the skin is very common it is certainly to a similar structure for it is taught in our schools that these are the same membrane the one being modified externally by exposure to the air - the mucous membrane when exposed. For a long time becoming dermoids. Professor Chapman in his lectures gives a remarkable instance of the metastases. A lady after eating of a tainted rock-fish became sick, which was followed in a few minutes by a rash. Very soon afterwards dining out, she saw a fish of the same kind, instantly became nauseated, in a few minutes the profuse was covered with an eruption like the former, the mental association placing the stomach in exactly the same state in which it was originally when it contained



the tainted fish." Dyspepsia a disease of the mucous tissue is often caused by eruptions, particularly when of a chronic nature, being repelled from the skin: this is very common.

In diseases of the Mucus Gland, metastasis is occasionally seen, more frequently when only functional derangement exists, as permanent enlargement of the mamma from suppressed menstruation &c. The similarity of structure, when not so evident, their functions however are surprisingly analogous, both yielding their positions at certain periods only, both their exertions having for their object the protection & sustenance of the young infant. This would lead us to suspect that their organization was similar. (not said metastasis rarely occur)

In Cyanotic pustules the transfer is from the parotid glands to the testis - also glandular bodies; it must be confessed however that their functions are widely different.

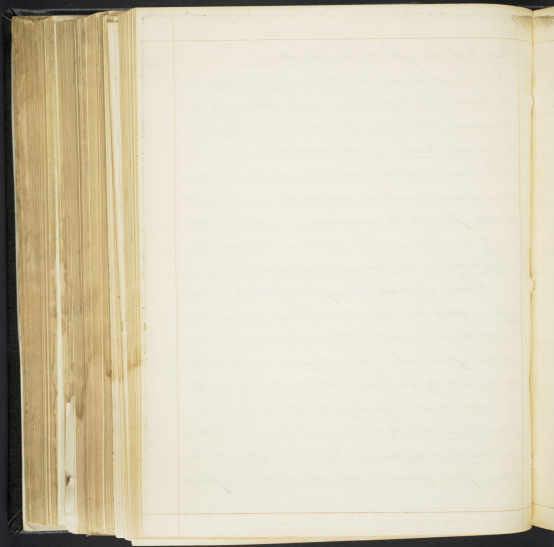


but both are glandular structures.

In Hemorrhagic metastasis is often seen, as in Hemorrhoids & Epistaxis, each assuming vicariously the office of the other & both confined to a similar tissue - viz. the vascular.

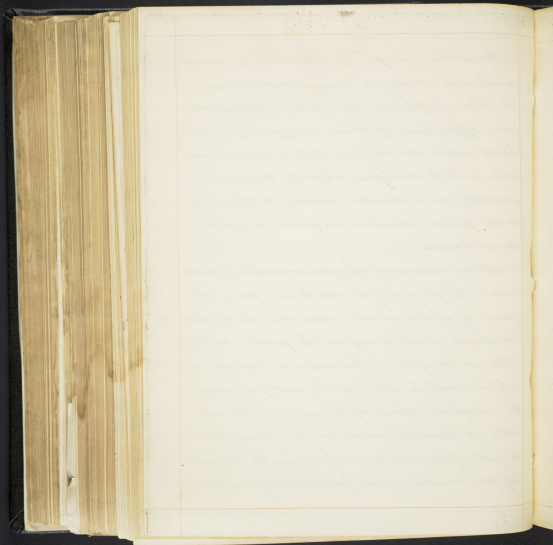
In local complaints when the peritoneal covering becomes involved, metastasis is very apt to take place to the arachnoid membrane, especially in children. This affords us an example of metastasis in serous membranes.

From all these examples I think it will appear that the adoration I have endeavored to establish is, not without foundation, and at the epoch when generalization in medicine is carried to such an extent, it may not be without its usefulness to extend it to a phenomenon which so far as I know has hitherto been considered as bidding defiance to all rule, as taking place indiscriminately when least anticipated.



As another example of metastasis in serous membranes it may be observed, that towards the close of pleurisy, it sometimes happens that every appearance of disease disappears from the chest, while at the same time a violent arthritis will be developed. Hence the transfer is evidently to a structure similar to that left for the pleura parietalis membrane and, both serous tissues.

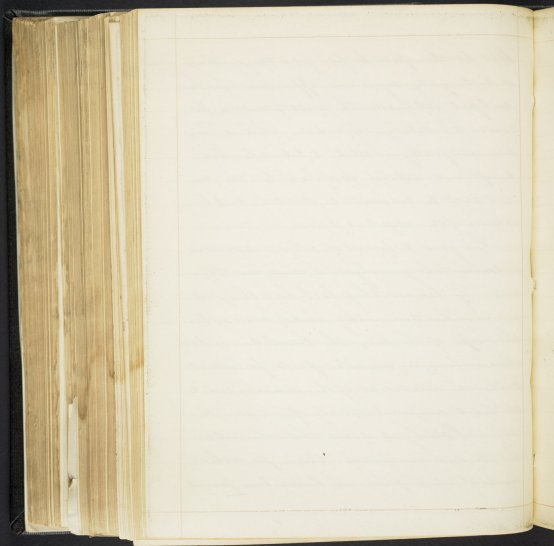
As an instance of this same occurrence in another tissue, the progress of a well known disease, although of a more chronic nature than the one last mentioned seems to confirm the position assumed, - this is scrophula. This disease is frequently developed early in life & for the most part occupies the absorbent glands of the neck. In this situation it sometimes remains for years, giving the subject of it more uneasiness from the deformity it occasions, than from its dangerous nature.



But let them first be freed from the swellings
or discharges by judicious application, you have
developed internally the most formidable dis-
ease in the catalogue of medicine, which always
terminates fatally. - I allude to tubercular Con-
sumption or internal scrophula. Here the me-
tastasis is to an identical structure, both being
diseases of the absorbent tissue.

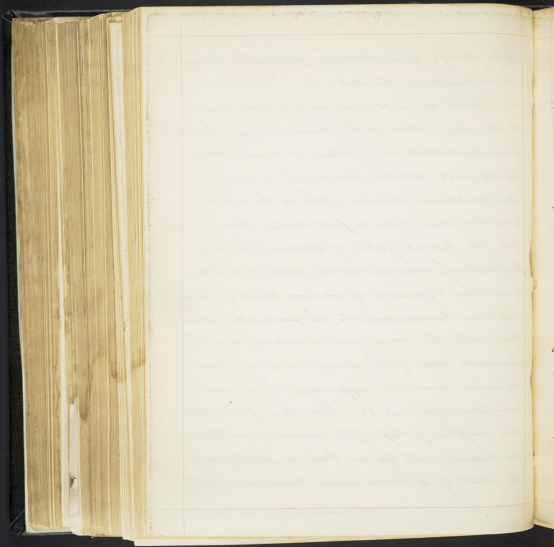
In gout & rheumatism where metastasis is
so common, the generalization seems more diffi-
cult. If however they both have their seat
in muscular tissue, they readily come within
the scope of the law, - the translation in both
diseases being to muscular parts. In catarrh,
to the muscular coat of the stomach; and to
the heart composed entirely of muscular struc-
ture. Pathologists admit that rheumatism
has its seat in muscular tissue & further
marks of intense phlogosis having been found

have they



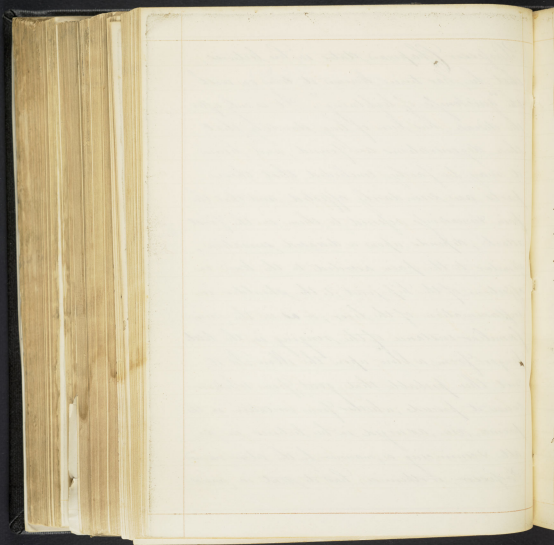
after death: Now as to the particular disease the difficulty is decided.

Great at first pain seems to bid adieu to the law: But of this disease, it may be remarked that it is seldom or never fatal in its first attacks, consequently is in a measure a chronic disorder. When it has existed for a long time, upon a post mortem examination the dissemination of structure is most particularly observed in the joints, as chalky concretions, & effusions of various kinds of fluid into their cavities, and into the surrounding structures. All this would seem to indicate that the immediate seat of the disease was in the joints themselves, and their appendages, the synovial membrane, ligaments &c. But these parts, with the exception perhaps of the synovial membrane, are endued with far too little sensibility to be the seat of a disease which comes on so rapidly.



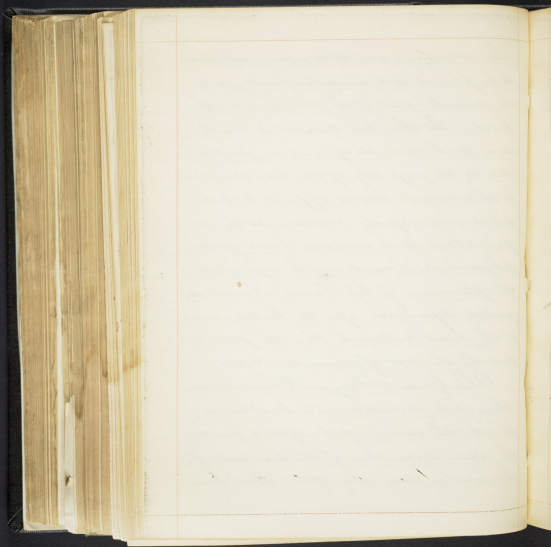
Professor Chapman states in his lectures, that he has twice known it come on with the "quickness of lightning". It is only after the disease has been of long standing that these degenerations are found, and hence it may be fairly concluded that these parts are secondarily affected, and that the pain sometimes referred to them in the first attack, depends upon a diseased sensation, similar to the pain ascribed to the knee in affections of the hip-joint; to the shoulder in inflammation of the liver; or as in the more familiar instance of the ringing in the little finger from a blow upon the elbow. Is it not then probable that gout from whatever cause it proceeds; whether from irritation in the prima via, as urged in his lectures in so all & convincing a manner by the above named Professor; or otherwise; has its seat in mus-

not
beard
pain &
in the
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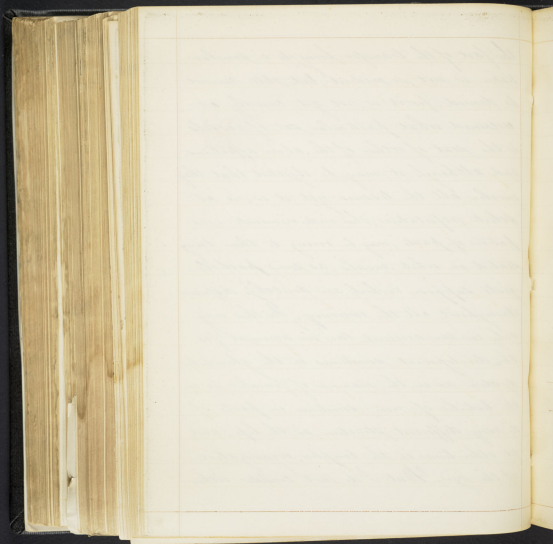


cular structure, and that when metastasis takes place, it is to miliary parts, as to the muscular coat of the stomach, or to the heart. In these two diseases it would seem to be more dangerous in proportion to the rapidity of the transfer, and for this reason - that it appears to take place more rapidly according as the organ about to be invaded has a greater physiological rank in the organization; the phenomena of life having a more immediate dependence upon the healthy action of the heart & stomach, than the parts ordinarily the seat of rheumatism & gout.

In Cancer & King's Hematodes, something like metastasis is to be observed, for after the excision of the affected part, the same degeneration of structure will often occur in some other spot. But these

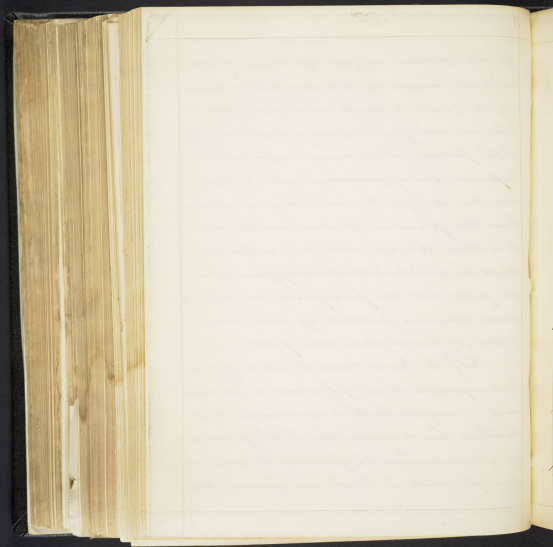


the fact of the transfer being to a particular tissue is not so evident; but still cannot be denied; for it is not yet positively ascertained what particular set of vessels is the seat of either of the above affections; and although it may be objected that they involve all the tissues, yet it is no absolute septation; this indiscriminate communication of parts may be owing to their being stated in white vessels, as some pathologists suppose which are doubtless diffused throughout all the economy. In this way only we can account for the account for the development sometimes in the glandular system as in the mamma of female, or in the testicle of male; sometimes in parts of a very different structure, as the lip; and at other times in the complex organization of the eye. But I do not consider either



of these diseases as fair specimens of metastasis, neither of them ever leaving their original seat to invade other parts, but when once developed continuing during the life of the patient. They however experience an imperfect sort of metastasis, when Surgery has done its office & removed them - the system being then placed in the same condition as it is in these diseases when pain unknown causes the malady entirely, disappears from one part, but the predisposition to diseased action, remaining, it starts up with renovated vigour in some other part.

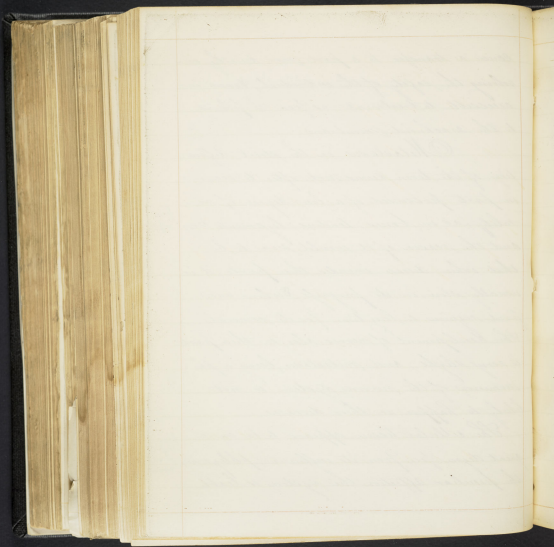
If the law is correct it will be of practical importance to the physician in the treatment of diseases liable to its occurrence, by cautioning him to overcome them by the judicious use of remedies before the power of this action principle shall be brought into operation, and



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cause a transfer to a part more directly in-
volving the safety of the individual, & hence in-
accessible to treatment - as from the pleura
to the arachnoid membrane.

Metastasis in the strict defini-
tion of the term seems not often to occur
in parts possessed of a low degree of vi-
tality, as in bones; tendons; ligaments &c.; *few vessels*
and the reason of it would seem to be,
that when disease invades these parts, it is
usually slow in its progress, & when once
fixed requires a long time for its removal.
The development of nerves also in these parts
is very slight; and metastasis being a phe-
nomenon of the nervous system is not
likely to happen in their diseases. *See?*

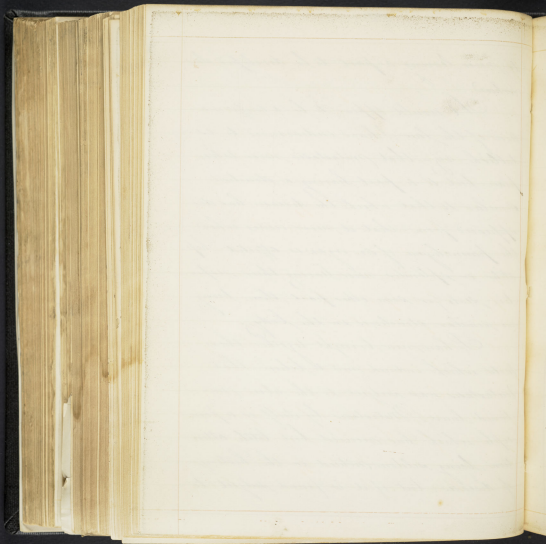
The cellular tissue appears to be in a
great degree free from its influence; phlegmon, *few vessels or very minute*
the peculiar affection this system is liable



to, never leaving a part to be developed elsewhere.

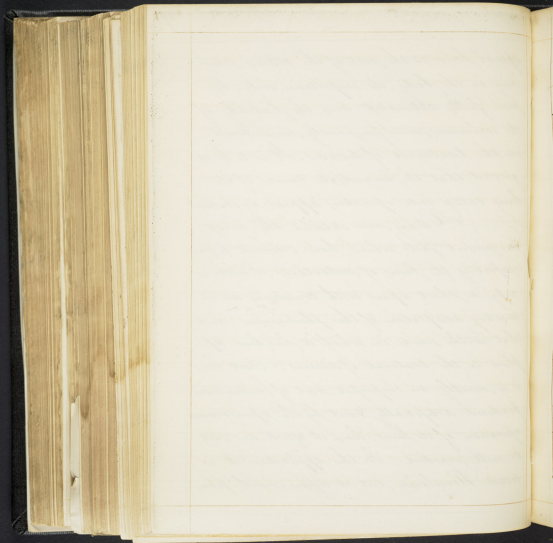
It would appear to be a confirmation of the law I have endeavored to establish viz - that metastasis never takes place but is a part having a structure similar to that which the disease has disappeared from - that it never occurs when the parenchyma of an organ is affected - hepatitis or splenitis never leaving their respective seats for some other part, there being no similar structures in the body.

I have now brought together those facts which induced me to believe that Metastasis was subject to the above mentioned laws. Metastasis by itself is a principle which has received but little attention, being seldom noticed in the history of diseases; but if it is found subject to

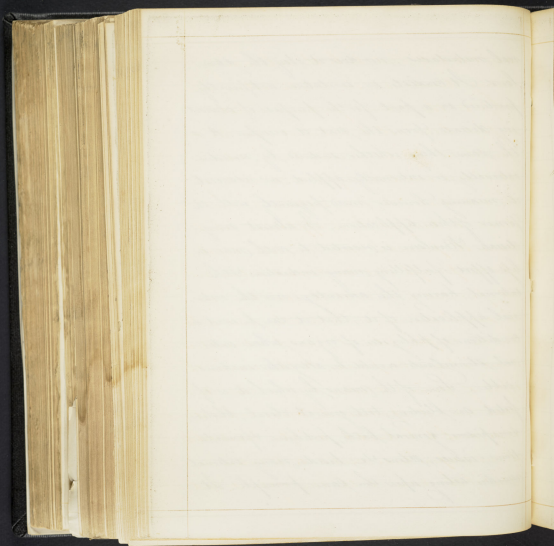


special laws as the rest of the actions occurring in the body, its importance will be more fully estimated, and the liability of its occurrence more frequently remembered in the treatment of diseases. It is to be regretted that the immediate causes of its being called into operation appear so obscure.

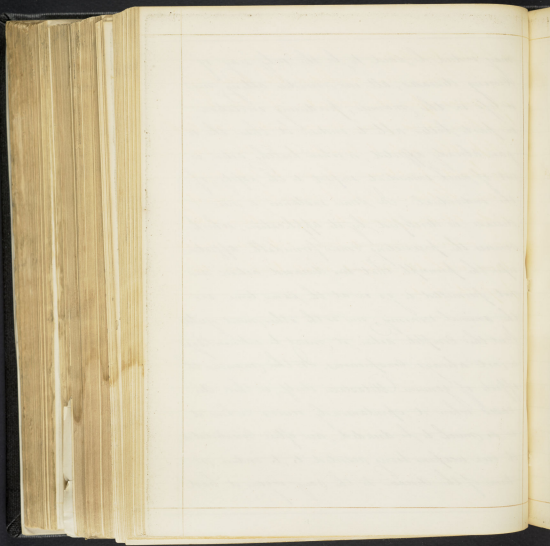
Having now detailed the most prominent facts which have occurred to me respecting the laws of metacrosis, I will occupy a short space with considering an interesting adaptation of this phenomenon - and that is - the mode in which it has been applied to the treatment of diseases. Part here it is, mostly an imperfect sort of metacrosis, produced artificially & not by the spontaneous operation of its laws. Hence its effects are not so well marked. In this application it is called Revulsion, but it differs much from



real metastasis, nor does it obey the same
 laws. It consists in irritation artificially
 produced in a part for the purpose of abstract-
 ing disease from the seat it occupies. It is
 the same thing whether induced by remedies
 externally or internally applied; we associate
 its meaning however more frequently with the
 former of these applications. In almost every
 disease Verruine is resorted to with more or
 less effect fulfilling many indications & the
 external having the advantage over the inter-
 nal application of it, that it can be used in
 conditions of phlogosis of organs, when inter-
 nal stimulants would be altogether inadmis-
 sible. Some of the means by which it is ef-
 fected are bleeding, both general & local; blisters;
 sinapisms; general baths, pediluvia, sponda-
 tions; issues; stons &c; besides many internal
 remedies acting upon this same principle. It



may indeed be said to be the only way of
 curing diseases, all our remedies acting more
 or less in this manner; producing irritation
 in parts better able to endure it than the or-
 gan already affected, or whose health's action is
 not of such immediate import to the safety of
 the individual; In some instances a new
 disease is developed by its application, which
 removes the preexisting & more formidable affection;
 upon the principle that two diseased actions are
 not permitted to go on at the same time in
 the animal economy; one or the other must yield.
 But this complete action, it must be acknowledged
 is not always conspicuous. In this manner the
 effects of genuine Malaria itself, in those dis-
 eases where it spontaneously occurs, & where it
 is so much to be dreaded, are often counteracted,
 its own weapons being recoiled to, to induce re-
 turn of the disease to the very organ it had



as told described.

I have now concluded the detail of
my views upon this subject. If I have erred
on them, it is from sincere mistake, & as such
I hope they will be considered by those en-
lightened gentlemen who are to take cogni-
zance of them. And I acknowledge myself
ready at any period to renounce them, when
more mature judgment & more extensive acquain-
tance with the subject shall lead me to the
propriety of it.

